CONSTRUCTION
BASIC
VETERANS

CONSTRUCTION MECHANIC

Qualification Standards

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DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
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QSB Electronically: **http://www.seabee.navy.mil/cbvet/QSB.htm**

This book is dedicated to the memory of
CMC (SCW) Andrew Jackson Smith
1950 – 1996

CONSTRUCTION MECHANIC

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CM Topics - Phase 1 (CM-1)		CM Topics - Phase 2 (CM-2)	
Topic #	Topic Title	Topic #	Topic Title
300	Mathematics	312	Hydraulic Systems[1]
301	Shop Tools	313	Automotive and Truck Suspensions[1]
302	Shop Safety	314	Steering[1]
303	Gasoline Internal Combustion Engine and Lubrication	315	Clutches[1]
304	Gasoline Engine Inspection and Maintenance	316	Transmission Components, Manual and Automatic
305	Electrical / Electronic Principles	317	Transfer Case and Auxiliary Gear Box
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		329	Tracked Equipment Mechanical Drive Trains
		330	Tracked Equipment Hydrostatic Drive Trains
		331	Tracked Equipment Suspension Systems

The above items may be accomplished by (but are not limited to) utilizing one or more of the training resources listed below. Selecting the right training resource(s) is the responsibility of your chain of command. Considerations such as cost and availability must be included in determining which resource(s) best meet your and your command's particular needs.

Training Resources

Mobile Training Teams	Vocational Technical Schools	Utility companies
NCTC Port Hueneme	Local Contractors	OJT "AT" with an active duty NMCB
NCTC Gulfport	Contract instructors	Municipal Public Schools (night school)
Other Naval/Service Schools	Municipal public works	Other(s)

[1] Topics 312, 313, 314 and 315 were Phase 1 topics. Change submitted by NCTC Port Hueneme, 09 Jan 2003.

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Section 300

300 Mathematics

References:

~~a. Mathematics, Vol. 1. NAVPERS 10069-C~~ [1]
~~b. General Mathematics for Construction Ratings, NAVPERS 94415~~[2]
a. Mathematics, Basic Math and Algebra, NAVEDTRA, Course No: 14139

300.1 With the use of calculator, **CONVERT** whole numbers, fractions, decimals and percents.

_____
(Signature) (Date)

.2 With the use of a calculator, **CALCULATE** the area of a circle and surface area of a cylinder.

_____
(Signature) (Date)

.3 With the use of a calculator, **CALCULATE** and **SOLVE** mathematical problems commons to the Mechanic rating.

_____
(Signature) (Date)

[1] Obsolete. Replaced with NAVEDTRA 14139. See NAVEDTRA Number Conversion Table, Updated 27 September 2002.

Note: NAVEDTRA 10069-C was more recently published as *Mathematics, volume 1*, NAVEDTRA 10069-D1 (also obsolete). Volume 1 provides a review of basic arithmetic and elementary algebra; it includes fractions, decimals, percentages, exponents, radicals, and logarithms. It also contains exercises in factoring polynomials, linear equations, ratio, proportions, variation, complex numbers and quadratic equations. It presents brief introduction to plane figures, geometric construction, and trigonometry. Reduction, and General Maintenance books.) Reference: *Electronics Technician Supervisor (ET1)* NAVEDTRA: 14085, page 1-6.
Retrieved January 3, 2003 from https://www.advancement.cnet.navy.mil/products/web-pdf/tramans/bookchunks/14085_ch1.pdf

[2] Obsolete.

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Section 301

301 Shop Tools

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998
b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

301.1 **DESCRIBE** the common mechanics hand tools and their uses.

_____

(Signature) (Date)

.2 **DESCRIBE** the common shop air tools and their uses.

_____

(Signature) (Date)

.3 **DESCRIBE** the common shop electrical tools and their uses.

_____

(Signature) (Date)

.4 **DESCRIBE** common shop safety equipment and their uses.

_____

(Signature) (Date)

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Section 302

302 Shop Safety

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998
b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

302.1 **EXPLAIN** the use of Hazardous Material Safety Data Sheets (MSDS).

_____

(Signature) (Date)

.2 **LIST** common safety signs and notices.

_____

(Signature) (Date)

.3 **DESCRIBE** general shop safety.

_____

(Signature) (Date)

.4 **DESCRIBE** hazardous waste management, pollution prevention. waste minimization and control.

_____

(Signature) (Date)

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Section 303

303 Gasoline Internal Combustion Engine & Lubrication

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998
b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

303.1 **DESCRIBE** the function and major parts of the cooling system.

_____

(Signature) (Date)

.2 **DESCRIBE** the function and major parts of the lubrication system.

_____

(Signature) (Date)

.3 **DESCRIBE** the function and major parts of valve trains.

_____

(Signature) (Date)

.4 **DESCRIBE** the function and major parts of the cylinder block.

_____

(Signature) (Date)

Section 303, cont'd

.5 **EXPLAIN** the differences between a reciprocating and a rotary engine.

_____

(Signature) (Date)

.6 **LIST** in sequence the four cycles of a four stroke cycle engine.

_____

(Signature) (Date)

.7 **EXPLAIN** the difference between a four- and a two-cycle engine.

_____

(Signature) (Date)

.8 **DEFINE** the bore and stroke of an engine.

_____

(Signature) (Date)

.9 **EXPLAIN** cubic inch displacement.

_____

(Signature) (Date)

.10 **DEFINE** what top and bottom dead center is.

_____

(Signature) (Date)

Section 303, cont'd

.11 **EXPLAIN** valve timing.

_____
(Signature) (Date)

.12 **EXPLAIN** what ignition timing is.

_____
(Signature) (Date)

.13 **EXPLAIN** the purpose of the vibration damper (harmonic balancer).

_____
(Signature) (Date)

.14 **EXPLAIN** the purpose of the flywheel.

_____
(Signature) (Date)

.15 **DESCRIBE** the function and major parts of the gasoline fuel system.

_____
(Signature) (Date)

Section 303, cont'd

.16 **IDENTIFY** two different types of air cleaners.

_____
(Signature) (Date)

.17 **DESCRIBE** the function and construction of the intake manifold.

_____
(Signature) (Date)

.18 **DESCRIBE** the major components and their function of the exhaust system.

_____
(Signature) (Date)

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Section 304

304 Gasoline Engine Inspections and Maintenance

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998
b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

304.1 **DISASSEMBLE**, **INSPECT** and **ASSEMBLE** a gasoline engine to manufacturer's specification, using the appropriate manufacturer's service manuals, and demonstrating correct safety practices

_____

(Signature**)** (Date)

.2 **EXPLAIN** the procedures for and safety concerns with ignition timing and adjusting valves. (The specs and tools will vary with different vehicles)

_____

(Signature**)** (Date)

.3 **PEFORM** a major tune-up to include valve adjustment, compression testing and adjust ignition timing.

_____

(Signature) (Date)

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Section 305

305 Electrical / Electronic Principles

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

305.1 **DEFINE** the fundamental elements of basic electronics in accordance with applicable reference materials.

.2 **INTERPRET** electrical/electronic symbols, using charts provided.

_____

(Signature) (Date)

.3 **TRACE** and **EXPLAIN** the current flow in an electrical circuit diagram.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

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Section 306

306 Electrical Maintenance

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

306.1 **DESCRIBE** the fundamentals, operation**,** terms and components of an automotive type battery.

_____

(Signature) (Date)

.2 **LIST** the general safety requirements for maintenance on automotive type batteries, using the appropriate service manuals.

_____

(Signature) (Date)

.3 **TEST** battery condition using the correct tools, test equipment, and service manuals.

_____

(Signature) (Date)

.4 **INSPECT** and isolate malfunctions of a DC circuit to include batteries, wiring and switches.

_____

(Signature) (Date)

.5 **DESCRIBE** an electric starter and its function.

_____
(Signature) (Date)

.6 **LIST** the components of the electric starter system.

_____
(Signature) (Date)

.7 **INSPECT, TEST** and **ISOLATE** malfunctions of an electric starting system.

_____
(Signature) (Date)

.8 **DESCRIBE** the charging system and its function.

_____
(Signature) (Date)

.9 **LIST** the components of the charging system.

_____
(Signature) (Date)

.10 **INSPECT, TEST** and **ISOLATE** malfunctions of the charging system.

_____
(Signature) (Date)

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Section 307

307 Lighting, Accessory and Warning Circuits

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

307.1 **DESCRIBE** the operation and components of a lighting system.

_____

(Signature) (Date)

.2 **LIST** the general safety requirements for maintaining a lighting system.

_____

(Signature) (Date)

.3 **INSPECT, TEST** and **ISOLATE** malfunctions of a lighting system.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

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Section 308

308 Air Bags

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

308.1 **DESCRIBE** the operation and components of air bag systems.

_____

(Signature) (Date)

.2 **LIST** the general safety requirements for maintenance on the air bag system.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

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Section 309

309 Electronic Ignition, Fuel & Emission Systems

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

309.1 **DESCRIBE** the components and operation of an electronic ignition system.

_____

(Signature) (Date)

.2 **REMOVE, INSPECT** and **INSTALL** distributor in accordance with manufacturer's specifications.

_____

(Signature) (Date)

.3 **INSPECT, TEST** and **ISOLATE** malfunctions of the ignition system.

_____

(Signature) (Date)

.4 **DESCRIBE** the operation, terms and components of the air/fuel system.

_____

(Signature) (Date)

Section 309, cont'd

.5 **LIST** the general safety requirements for maintenance of the air/fuel system.

_____
(Signature) (Date)

.6 **INSPECT, TEST** and **ISOLATE** malfunctions of the air/fuel system.

_____
(Signature) (Date)

.7 **LIST** three components of the emission control system.

_____
(Signature) (Date)

.8 **DESCRIBE** the operation and component functions of the emission control system.

_____
(Signature) (Date)

.9 **LIST** general safety requirements for maintenance of the emission control system.

_____
(Signature) (Date)

.10 **INSPECT,** test and isolate malfunctions of the emission control system.

_____
(Signature) (Date)

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Section 310

310 On-Board Computers

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

310.1 **DESCRIBE** the operation and component functions of the on-board computer.

_____

(Signature) (Date)

.2 Using the proper tools **RETRIEVE** and **INTERPRET** codes to isolate malfunctions to the on-board computer system.

_____

(Signature) (Date)

.3 **LIST** general safety requirements for testing of the on-board computer.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

Qualification Standards

Section 311

311 Heating and Air Conditioning Systems

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

311.1 **LIST** the components and their function of the heating system.

_____

(Signature) (Date)

.2 **EXPLAIN** the operation of the heating system.

_____

(Signature) (Date)

.3 **DESCRIBE** the proper tools and test procedures used when trouble shooting and locating leaks on the heating system.

_____

(Signature) (Date)

.4 **LIST** the components and their function of the air conditioning system.

_____

(Signature) (Date)

Section 311, cont'd

.5 **EXPLAIN** the operation of the air conditioning system.

_____

(Signature) (Date)

.6 **DESCRIBE** the proper tools and test procedures used when troubleshooting and locating leaks on air conditioning system.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

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Section 312

312 Hydraulic Systems

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

312.1 **DESCRIBE** basic hydraulic principles.

_____

(Signature) (Date)

.2 **IDENTIFY** schematic symbols and **TRACE** prints of a hydraulic system. (Using chart provided)

_____

(Signature) (Date)

.3 **LIST** general safety requirements for servicing hydraulic systems.

_____

(Signature) (Date)

.4 **DESCRIBE** the procedure and tools needed to disassemble, hone and reassemble hydraulic cylinders.

_____

(Signature) (Date)

Section 312, cont'd

.5 **EXPLAIN** the procedure to manufacture and test a hydraulic hose assembly.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

Qualification Standards

Section 313

313 Automotive and Truck Suspension

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

313.1 **EXPLAIN** the purpose of the suspension system.

_____

(Signature) (Date)

.2 **EXPLAIN** the difference between the conventional frame and the unibody frame.

_____

(Signature) (Date)

.3 **LIST** two types of suspension systems.

_____

(Signature) (Date)

.4 **LIST** general safety requirements for maintenance of the suspension system.

_____

(Signature) (Date)

Section 313, cont'd

.5 **PERFORM** a suspension system inspection.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

Qualification Standards

Section 314

314 Steering

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

314.1 **DESCRIBE** two types of steering systems.

_____

(Signature) (Date)

.2 **LIST** the components of a steering assembly. **DESCRIBE** the function of each.

_____

(Signature) (Date)

.3 **PERFORM** preventative maintenance on a steering assembly.

_____

(Signature) (Date)

.4 **LIST** the general safety requirements for maintenance of the automotive and truck steering assemblies.

_____

(Signature) (Date)

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Section 315

315 Clutches

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

315.1 **EXPLAIN** the operation and function of the clutch pressure plate, clutch disc and the throw out bearing.

_____

(Signature) (Date)

.2 **LIST** and **EXPLAIN** the function of the three types of clutch assembly control units.

_____

(Signature) (Date)

.3 **EXPLAIN** the function of the flywheel and the pilot bearing.

_____

(Signature) (Date)

.4 **LIST** the general safety requirements for maintenance of the automotive and truck clutch assembly.

_____

(Signature) (Date)

Section 315, cont'd

.5 **TROUBLE-SHOOT** and **ADJUST** an automotive / truck clutch assembly.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

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Section 316

316 Transmission Components, Manual and Automatic

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

316.1 **EXPLAIN** the operation and function of manual transmissions.

_____

(Signature) (Date)

.2 **TROUBLE-SHOOT** and **ADJUST** a manual transmission, shifting linkages and controls.

_____

(Signature) (Date)

.3 **EXPLAIN** the operation and function of the automatic transmission, torque converter and components.

_____

(Signature) (Date)

.4 **LIST** the general safety requirements for maintenance of the automatic and manual transmission.

_____

(Signature) (Date)

.5 **TROUBLESHOOT** an automatic transmission; **ADJUST** shifting linkages and controls (if necessary).

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

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Section 317

317 Transfer Case and Auxiliary Gear Box

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

317.1 **EXPLAIN** the **PURPOSE** of the transfer case and auxiliary gearbox.

_____

(Signature) (Date)

.2 **EXPLAIN** the operation and functions of the transfer case, auxiliary gearbox.

_____

(Signature) (Date)

.3 **LIST** the general safety requirements for maintenance of a transfer case or auxiliary gearbox.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

Qualification Standards

Section 318

318 Transaxle and Front Wheel Drive

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

318.1 **EXPLAIN** the purpose and operation of a transaxle.

_____

(Signature) (Date)

.2 **DESCRIBE** and **LIST** the procedures and tools needed to remove, inspect and install a transaxle.

_____

(Signature) (Date)

.3 **LIST** the general safety requirements for maintenance of a transaxle.

_____

(Signature) (Date)

.4 **INSPECT** and **ISOLATE** malfunctions in a transaxle.

_____

(Signature) (Date)

Section 318, cont'd

.5 **DESCRIBE** and **EXPLAIN** the purpose of a CV joint and boot.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

Qualification Standards

Section 319

319 Drive Trains

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

319.1 **EXPLAIN** the operation and functions of the driveline, yokes and universal joints.

_____

(Signature) (Date)

.2 **DESCRIBE** and **LIST** the procedures and tools needed to remove, inspect and install driveline and components.

_____

(Signature) (Date)

.3 **LIST** the general safety requirements for maintenance of drivelines and components.

_____

(Signature) (Date)

.4 **INSPECT** and **ISOLATE** malfunctions in a driveline and its components.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

Qualification Standards

Section 320

320 Differentials and Drive Axles

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

320.1 **DESCRIBE** the fundamentals, operation and components of differentials to include shifting linkages and controls.

_____

(Signature) (Date)

.2 **LIST** the general safety requirements for maintenance on differentials.

_____

(Signature) (Date)

.3 **INSPECT, TEST,** and **ISOLATE** malfunctions on differentials.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

Qualification Standards

Section 321

321 Wheels and Tires

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

321.1 **DESCRIBE** two different types of automotive and truck wheels.

_____

(Signature) (Date)

.2 **LIST** three different types of metals that wheels are made from.

_____

(Signature) (Date)

.3 **DESCRIBE** the procedures to remove, inspect and install automotive and truck wheel hub assemblies and wheel studs.

_____

(Signature) (Date)

.4 **EXPLAIN** how to remove, inspect and install front and rear automotive or truck wheel bearings and grease seals.

_____

(Signature) (Date)

Section 321, cont'd

.5 **EXPLAIN** the difference between bias ply and radial ply tires.

_____

(Signature) (Date)

.6 **EXPLAIN** the difference between directional and non-directional tires.

_____

(Signature) (Date)

.7 **LIST** the general safety requirements for maintenance of automotive and truck wheels, wheel hub assemblies and tires.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

Qualification Standards

Section 322

322 Hydraulic Brakes

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

322.1 **DESCRIBE** the operation and functions of hydraulic brake system components, to include master cylinders, wheel cylinders, vacuum-over-hydraulic units, hydraulic power booster units, drum and disc brake assemblies, and parking brakes.

_____

(Signature) (Date)

.2 **LIST** the general safety requirements for maintenance of hydraulic brake system components.

_____

(Signature) (Date)

.3 **DESCRIBE** the procedures and tools needed to inspect, isolate malfunctions, replace, adjust and bleed drum and disc brake assemblies, brake lines, shoes, pads, and self-adjusting mechanisms.

_____

(Signature) (Date)

Section 322, cont'd

.4 **DESCRIBE** the operation and component functions of hydraulic anti-lock brake systems.

_____

(Signature) (Date)

.5 **DESCRIBE** the procedures and tools needed to inspect and isolate malfunctions on hydraulic anti-lock brake systems.

_____

(Signature) (Date)

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Section 323

323 Air Brakes

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

323.1 **EXPLAIN** the basic pneumatic principles and identify schematic symbols applicable to a simple pneumatic system (using color coded chart provided).

_____

(Signature) (Date)

.2 **DESCRIBE** the operation and component functions of air-actuated brake system components, to include reciprocating air compressors, tanks, valves, gauges, switches, brake rotor-chambers, slack adjusters and lines.

_____

(Signature) (Date)

.3 **LIST** the general safety requirements for maintenance of air brake system components.

_____

(Signature) (Date)

Section 323, cont'd

.4 **DESCRIBE** the operation and component functions of air brake anti-lock systems.

_____

(Signature) (Date)

.5 **DESCRIBE** and **LIST** the procedures and tools needed to inspect and isolate malfunctions of air anti-lock brake systems.

_____

(Signature) (Date)

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Section 324

324 Introduction to Diesel Engines

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998
b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

324.1 **DESCRIBE** the operation and major components of both the two-cycle and four-cycle diesel engines.

_____

(Signature) (Date)

.2 **LIST** the general safety requirements for maintenance of diesel engines.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

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Section 325

325 Unit Injector Fuel Systems

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

325.1 **LIST** the general safety requirements for maintenance of a unit injector fuel system.

_____

(Signature) (Date)

.2 **EXPLAIN** how to adjust the governor, adjust valves, time injectors, adjust the fuel rack and pre-start a diesel engine with a unit injector fuel system.

_____

(Signature) (Date)

.3 **DESCRIBE** component function, fuel flow and governor operation of a distributor type fuel system.

_____

(Signature) (Date)

Section 325, cont'd

.4 **LIST** general safety requirements for maintenance of a distributor type fuel system.

_____

(Signature) (Date)

.5 **DESCRIBE** the inspection procedures of a distributor type fuel system.

_____

(Signature) (Date)

.6 **PERFORM** an engine tune-up on a diesel engine with a distributor type fuel system.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

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Section 326

326 Cummins Diesel Engine Fuel System

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

326.1 **DESCRIBE** the fuel flow and governor operation of a pressure timed fuel injection system and Cummins CELECT.

_____

(Signature) (Date)

.2 **LIST** the general safety requirements for maintenance of a pressure timed fuel injection system.

_____

(Signature) (Date)

.3 **DESCRIBE** the procedures for inspecting a pressure timed fuel injection system.

_____

(Signature) (Date)

.4 **EXPLAIN** the pre-start procedures of a pressure-timed fuel system.

_____

(Signature) (Date)

Section 326, cont'd

.5 **DESCRIBE** the inspection procedures of a Cummins CELECT (computer control) fuel injection system.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

Qualification Standards

Section 327

327 Caterpillar Fuel Injection System

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

327.1 **DESCRIBE** the component function, fuel flow and governor operation of a Caterpillar fuel injection system.

_____

(Signature) (Date)

.2 **LIST** the general safety requirements for maintenance of a Caterpillar fuel injection system.

_____

(Signature) (Date)

.3 **DESCRIBE** the inspection procedures of a Caterpillar fuel injection system.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

Qualification Standards

Section 328

328 Tracked Construction Equipment

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998
b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999
c. John Deere Fundamentals of Service Power Trains Manual (FOS 40 series)

328.1 **DESCRIBE** tracked construction equipment power train types to include component function, purpose, location and operational characteristics of power shift and hydrostatic drive trains.

_____

(Signature) (Date)

.2 **EXPLAIN** the planetary gear operation to include function, purpose and operational characteristics of each component.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC

Qualification Standards

Section 329

329 Tracked Equipment Mechanical Drive Trains

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

329.1 **DESCRIBE** the principles of torque converters.

_____

(Signature) (Date)

.2 **LIST** the general safety requirements to remove and replace construction equipment mechanical power shift drive train components.

_____

(Signature) (Date)

.3 **EXPLAIN** how to remove, inspect, replace and adjust construction equipment steering and brake system components, to include pedal and lever linkages, actuators, brake bands and steering clutches.

_____

(Signature) (Date)

CONSTRUCTION MECHANIC
Qualification Standards
Section 330

330 Tracked Equipment Hydrostatic Drive Trains

References:
a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998
b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

330.1 **DESCRIBE** the operational principles of hydrostatic drive train systems.

_____
(Signature) (Date)

.2 **EXPLAIN** the operational principles of final drive systems.

_____
(Signature) (Date)

CONSTRUCTION MECHANIC

Qualification Standards

Section 331

331 Tracked Equipment Suspension Systems

References:

a. Construction Mechanic Basic, Volume 01, NAVEDTRA Course No: 14264 Edition: 1998

b. Construction Mechanic Basic, Volume 02, NAVEDTRA Course No: 14273 Edition: 1999

331.1 **LIST** the general safety requirements to replace and adjust tracked equipment suspension systems.

_____

(Signature) (Date)

.2 **DESCRIBE** the procedures and tools needed to inspect, replace and adjust tracked equipment suspension systems to include track chain, track pads, track rollers, carrier rollers and idlers.

_____

(Signature) (Date)